N61165.AR.005601
CNC CHARLESTON
5090.3a

FINAL REPORT CONTAMINATION ASSESSMENT REPORT FOR THE CHICORA TANK FARM APRIL 1994 SECTION 5 CNC CHARLESTON SC

09/27/2000

KEMRON ENVIRONMENTAL SERVICES, INC

5090
Code 1849
27 Sep 00

SCDHEC
Groundwater Quality Section
Bureau of Water
Attn: Mr. Paul Bristol
2600 Bull Street
Columbia, SC 29201

CHICORA TANK FARM SEDIMENT POND INFORMATION

Dear Mr. Bristol:

Enclosed is the "Final Report – Contamination Assessment Report For the Chicora Tank Farm, April 1994, Section 5". Section 5 addresses the sediment pond's TPH initial sampling, confirmation sampling and constituent sampling. Figure 5-1 displays the sampling location and Table 5.3 summarizes the constituent sampling analysis.

I have also enclosed a copy of the SCDHEC "No Further Action" letter dated May 17, 1994 from Timothy A. Mettlen. This letter was in response to the Assessment Report.

Sincerely,

GABRIEL L. MAGWOOD
Remedial Project Manager

Encls:
(1) Final Report – Contamination Assessment Report For the Chicora Tank Farm, April 1994, Section 5
(2) No Further Action letter

5. SOIL ASSESSMENT RESULTS

Soil sampling was conducted as part of the PCAR to determine the site-wide distribution of petroleum residues in soils. These samples were collected as described in Chapter 3. Field observations during PCAR activities suggested that sediment in the spill containment pond was contaminated with petroleum residues. To provide additional information on the nature of the contamination in the pond, sediment samples were collected as part of the IWP.

5.1 SOIL SAMPLING RESULTS FROM PRELIMINARY CONTAMINATION ASSESSMENT. Soil samples retrieved from drill rig-advanced boreholes showed little evidence of contamination. Total BTEX at a concentration of 0.062 mg/kg was found in borehole B-7 at a depth of 3.5 to 5.0 ft. below ground surface. Total PAH of 0.104 mg/kg was detected in the sample retrieved from 5.0 to 6.5 ft. below ground surface in borehole B-11. PAH and BTEX were not detected in the remaining soil samples. TPH was not detected in any soil samples.

5.2 RESULTS FROM SAMPLING AND ANALYSIS OF POND SEDIMENT. On 17 March 1993, eight sediment samples, designated as "Sed-1" through "Sed-8", were collected from the bottom of the spill containment pond at locations illustrated in Figure 5-1. A stainless steel hand auger was used to scoop the sediment sample from above the pond liner. The sediment samples were collected from the auger, containerized, labeled, and delivered to the laboratory. The samples were assayed for TPH, BTEX, and PAH, using EPA Methods 418.1, 8020, and 8100, respectively. In addition, the sediment samples were screened in the field for volatile organic compounds with a flame ionization detector (Foxboro OVA) to determine the extent of volatile organic vapors present within the sediments.

As summarized in Table 5-1, TPH was measured in sediment samples Sed-2 and Sed-7 at concentrations of 1,200 mg/kg and 610 mg/kg, respectively. The concentrations of TPH in the remaining sediment samples were below 260 mg/kg. With the exception of samples Sed-2 and Sed-9, laboratory analysis did not detect any BTEX constituents in the sediment samples. Xylene was measured at concentrations of 0.009 mg/kg and 0.007 mg/kg in samples Sed-2 and Sed-9, respectively. The only PAH compound present above method detection limits is fluorene, measured at 0.039 mg/kg in sample Sed-5. Laboratory documentation for sediment sample analytical results is presented in Appendix C.

5.3 RESULTS FROM CONFIRMATION SAMPLING AND ANALYSIS OF POND SEDIMENT. As requested by Mr. Tim Mettlin of DHEC to Mr. John Sneed of Charleston Naval Base, dated 29 July 1993, confirmation analyses were performed. One sediment sample, collected from the location that yielded the highest TPH result from the previous sediment sampling event (Sed 2, 1200 mg/kg), was submitted for Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) analysis by modified Method 8015 using extraction Methods 5030 for GRO and 3550 for DRO. These analyses were requested as confirmation analyses for the original TPH (by Method 418.1) analyses conducted to assess the pond sediment. It was noted by Mr. Mettlin that the 418.1 analysis is subject to potential false positives due to various interferences.

The sediment was resampled at the Sed-2 sampling location. Laboratory results show a GRO content of 0.18 mg/kg and DRO content of 22 mg/kg for the sample. Thus, the total TPH as measured by Method 8015 GRO/DRO is significantly less than the Method 418.1 result of 1,200 mg/kg from the same location.

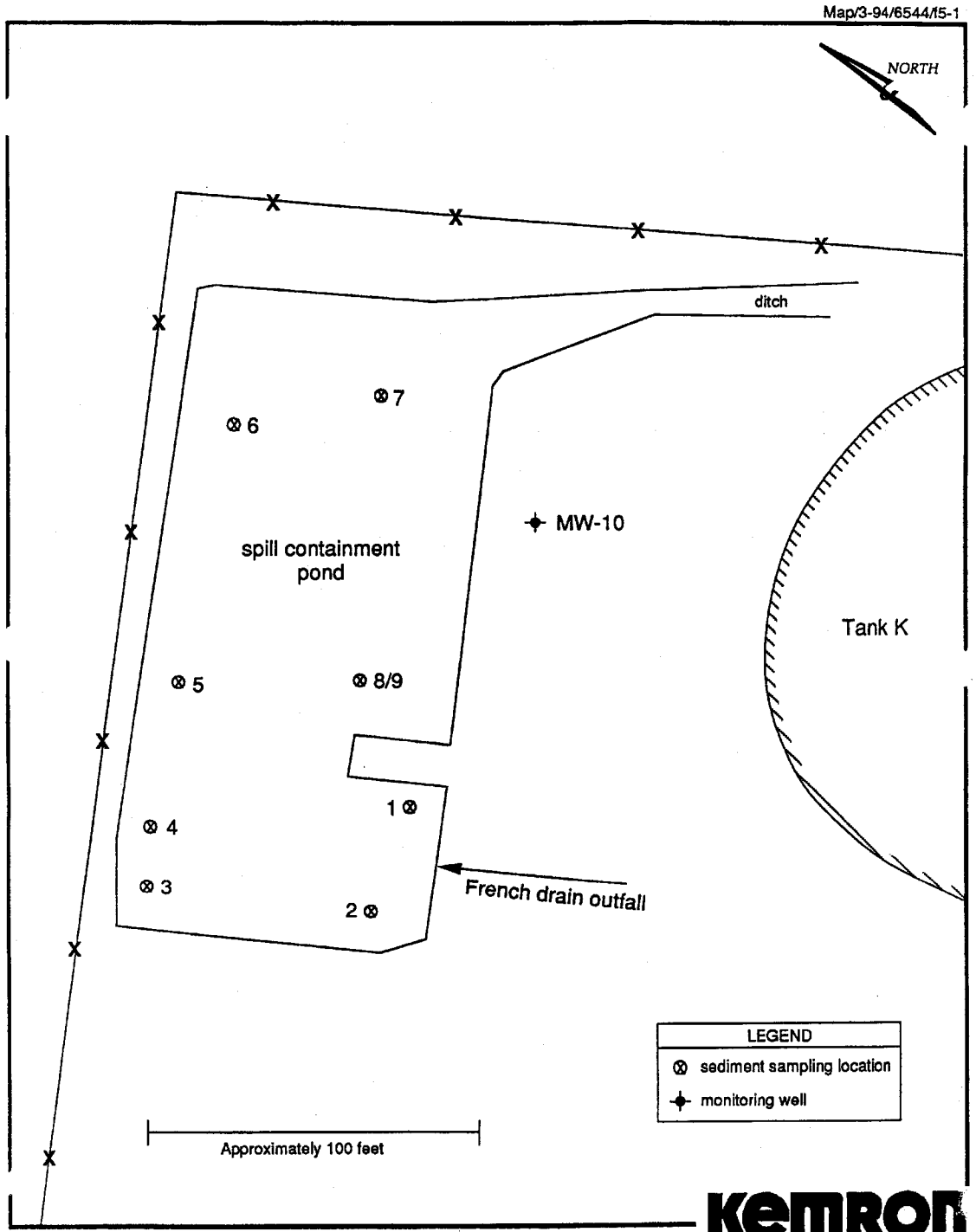

Figure 5-1. Sampling locations for spill containment pond sediment.

Table 5-1. Summary of Sediment Sample Analysis
Chicora Tank Farm, Charleston, South Carolina
17-Mar-93

Compound	Sed-1	Sed-2	Sed-3	Sed-4	Sed-5	Sed-6	Sed-7	Sed-8	Sed-9*
TPH	< 25	**1,200**	**260**	**140**	<25	**170**	**610**	<25	**46**
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylene	<0.005	**0.009**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.007**
Naphthalene	<0.033	<0.33	<0.33	<0.33	<0.033	<0.33	<0.33	<0.033	<0.033
Acenaphthylene	<0.033	<0.33	<0.33	<0.33	<0.033	<0.33	<0.33	<0.033	<0.033
Acenaphthene	<0.033	<0.33	<0.33	<0.33	<0.033	<0.33	<0.33	<0.033	<0.033
Fluorene	<0.033	<0.33	<0.33	<0.33	**0.039**	<0.33	<0.33	<0.033	<0.033
Phenanthrene	<0.033	<0.33	<0.33	<0.33	<0.033	<0.33	<0.33	<0.033	<0.033
Anthracene	<0.033	<0.33	<0.33	<0.33	<0.033	<0.33	<0.33	<0.033	<0.033
Fluoranthene	<0.033	<0.33	<0.33	<0.33	<0.033	<0.33	<0.33	<0.033	<0.033
Pyrene	<0.033	<0.33	<0.33	<0.33	<0.033	<0.33	<0.33	<0.033	<0.033
Benzo(a) anthracene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16
Chrysene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16
Benzo(b) fluoranthene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16
Benzo(k) fluoranthene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16
Benzo(a) pyrene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16
Indeno (1,2,3 -cd) pyrene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16
Dibenzo (a,h) anthracene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16
Benzo (g,h,i) perylene	<0.16	<1.6	<1.6	<1.6	<0.16	<1.6	<1.6	<0.16	<0.16

All measurements in parts per million (mg/kg)

* Sed-8 Duplicate

g:\projects\6544\fin5-1.xls

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

May 17, 1994

Commanding Officer
Attn: Mr. Daryl Fontenot (Code 1841)
Southern Division
Naval Facilities Engineering Command
2155 Eagle Dr., P.O. Box 190010
North Charleston, SC 29419-9101

RE: CNS - Chicora Tank Farm, GWPD Site #A-10-AA-13350
Fourth Quarter Monitoring Report received February 14, 1994
Assessment Report received April 26, 1994
Charleston County

Dear Mr. Fontenot:

The Ground-Water Protection Division (GWPD) of the South Carolina Department of Health and Environmental Control has reviewed the referenced Monitoring Report and Assessment Report. The GWPD concurs with the request for "No Further Action" at the referenced Site. Therefore, this office will not require any further investigation at this site at this time. However, if any contamination is indicated in the future, additional assessment and/or remedial activities may be necessary.

The referenced assessment report indicates that the tanks are to be closed and that limited impact may be identified during the tanks closures. Upon completion of the tank closures, a closure report documenting the closure activities and containing sampling data, should be submitted to the GWPD.

On all future correspondence concerning the Chicora Tank Farm, please reference GWPD Site #A-10-AA-13350. If you have any questions, please contact me at (803) 734-5328.

Sincerely,

Timothy A. Mettlen, Hydrogeologist
Assessment and Development Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

tam/chicora.nfa

cc: Christine Coker, Trident District EQC
Andrew Clark, KEMRON, Atlanta, GA